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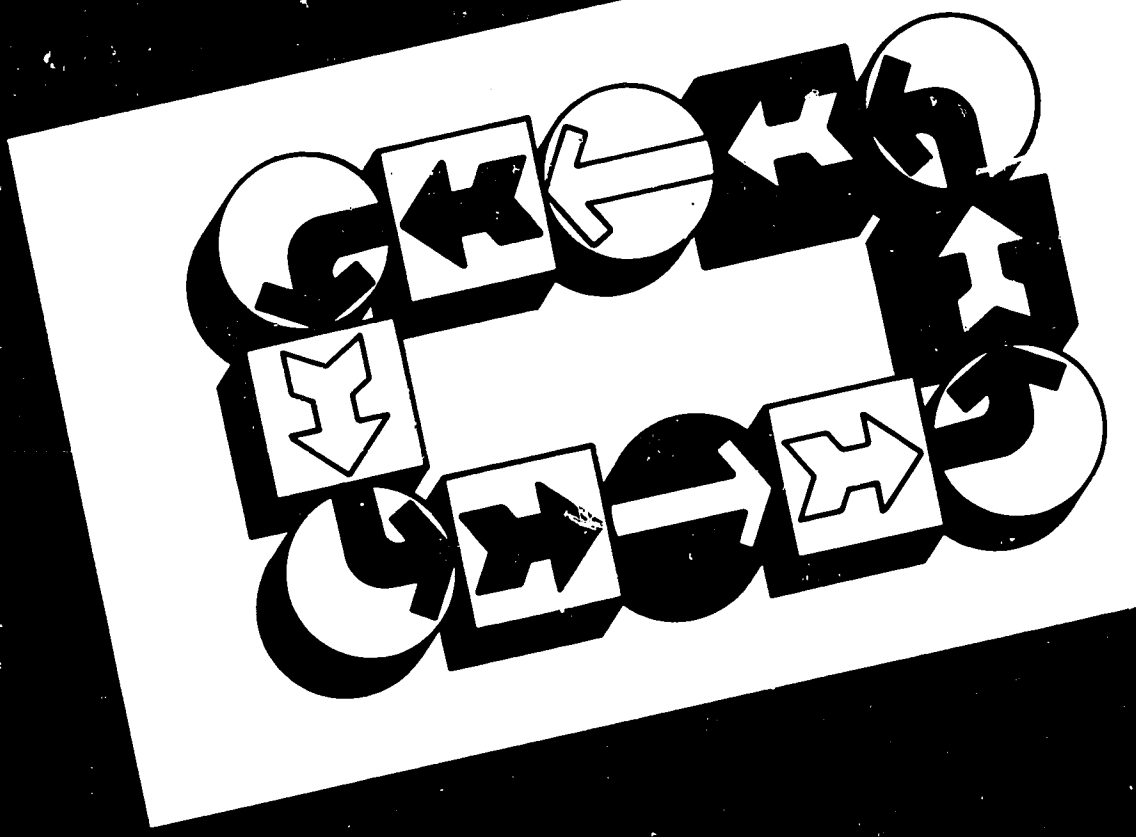
ABSTRACT

This module is one of a series of 127 performance-based teacher education learning packages that focus upon specific professional competencies of vocational teachers. The competencies upon which these modules are based were identified and verified through research as being important to successful vocational teaching at both the secondary and postsecondary levels of instruction. The modules are suitable for the preparation of teachers and other occupational trainers in all occupational areas. This module describes the factors that the teacher must consider when planning for educational resources (i.e., tools, materials, equipment) needed for lessons. It is designed to help teachers acquire the skills necessary to develop a systematic approach to the task of projecting the need for and acquiring instructional tools, materials, and supplies so that the vocational-technical program will run smoothly and efficiently. The module contains a terminal objective, two enabling objectives, a list of outside resources, and three learning experiences. Each learning experience contains an enabling objective, activities, information, and a self-check with model answers. The final learning experience is an actual teaching situation in which the prospective teacher is to project instructional resource needs and be assessed by a resource person. (KC)

Project Instructional Resource Needs

Second Edition



AMERICAN ASSOCIATION FOR VOCATIONAL INSTRUCTIONAL MATERIALS
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FOREWORD

This module is one of a series of 127 performance-based teacher education (PBTE) learning packages focusing upon specific professional competencies of vocational teachers. The competencies upon which these modules are based were identified and verified through research as being important to successful vocational teaching at both the secondary and postsecondary levels of instruction. The modules are suitable for the preparation of teachers and other occupational trainers in all occupational areas.

Each module provides learning experiences that integrate theory and application; each culminates with criterion-referenced assessment of the teacher's (instructor's, trainer's) performance of the specified competency. The materials are designed for use by teachers-in-training working individually or in groups under the direction and with the assistance of teacher educators or others acting as resource persons. Resource persons should be skilled in the teacher competencies being developed and should be thoroughly oriented to PBTE concepts and procedures before using these materials.

The design of the materials provides considerable flexibility for planning and conducting performance-based training programs for preservice and inservice teachers, as well as business-industry-labor trainers, to meet a wide variety of individual needs and interests. The materials are intended for use by universities and colleges, state departments of education, postsecondary institutions, local education agencies, and others responsible for the professional development of vocational teachers and other occupational trainers.

The PBTE curriculum packages in Categories A – J are products of a sustained research and development effort by the National Center's Program for Professional Development for Vocational Education. Many individuals, institutions, and agencies participated with the National Center and have made contributions to the systematic development, testing, revision, and refinement of these very significant training materials. Calvin J. Cotrell directed the vocational teacher competency research study upon which these modules are based and also directed the curriculum development effort from 1971 – 1972. Curtis R. Finch provided leadership for the program from 1972 – 1974. Over 40 teacher educators provided input in development of initial versions of the modules; over 2,000 teachers and 300 resource persons in 20 universities, colleges, and postsecondary institutions used the materials and provided feedback to the National Center for revisions and refinement.

Early versions of the materials were developed by the National Center in cooperation with the vocational teacher education faculties at Oregon State University and at the University of Missouri – Columbia. Preliminary testing of the materials was conducted at Oregon State University, Temple University, and the University of Missouri – Columbia.

Following preliminary testing, major revision of all materials was performed by National Center staff, with the assistance of numerous consultants and visiting scholars from throughout the country.

Advanced testing of the materials was carried out with assistance of the vocational teacher educators and students of Central Washington State College; Colorado State University; Ferris State College, Michigan; Florida State University; Holland College, P.E.I., Canada; Oklahoma State University; Rutgers University, New Jersey; State University College at Buffalo, New York; Temple University, Pennsylvania; University of Arizona; University of Michigan–Flint; University of Minnesota–Twin Cities; University of Nebraska–Lincoln; University of Northern Colorado; University of Pittsburgh, Pennsylvania; University of Tennessee; University of Vermont; and Utah State University.

The first published edition of the modules found widespread use nationwide and in many other countries of the world. User feedback from such extensive use, as well as the passage of time, called for the updating of the content, resources, and illustrations of the original materials. Furthermore, three new categories (K–M) have been added to the series, covering the areas of serving students with special/exceptional needs, improving students' basic and personal skills, and implementing competency-based education. This addition required the articulation of content among the original modules and those of the new categories.

Recognition is extended to the following individuals for their roles in the revision of the original materials: Lois G. Harrington, Catherine C. King-Fitch and Michael E. Woracott, Program Associates, for revision of content and resources; Cheryl M. Lowry, Research Specialist, for illustration specifications; and Barbara Shea for art work. Special recognition is extended to the staff at AAVIM for their invaluable contributions to the quality of the final printed products, particularly to Sylvia Conine for typesetting; to Marilyn MacMillan for module layout, design, and final art work; and to George W. Smith, Jr. for supervision of the module production process.

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The National Center for Research in Vocational Education's mission is to increase the ability of diverse agencies, institutions, and organizations to solve educational problems relating to individual career planning, preparation, and progression. The National Center fulfills its mission by:

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- Conducting leadership development and training programs.

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The institute is a cooperative effort of universities, colleges and divisions of vocational and technical education in the United States and Canada to provide for excellence in instructional materials.

Direction is given by a representative from each of the states, provinces and territories. AAVIM also works closely with teacher organizations, government agencies and industry.

MODULE E-1

Project Instructional Resource Needs

Second Edition

Module E-1 of Category E—Instructional Management
PROFESSIONAL TEACHER EDUCATION MODULE SERIES

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INTRODUCTION

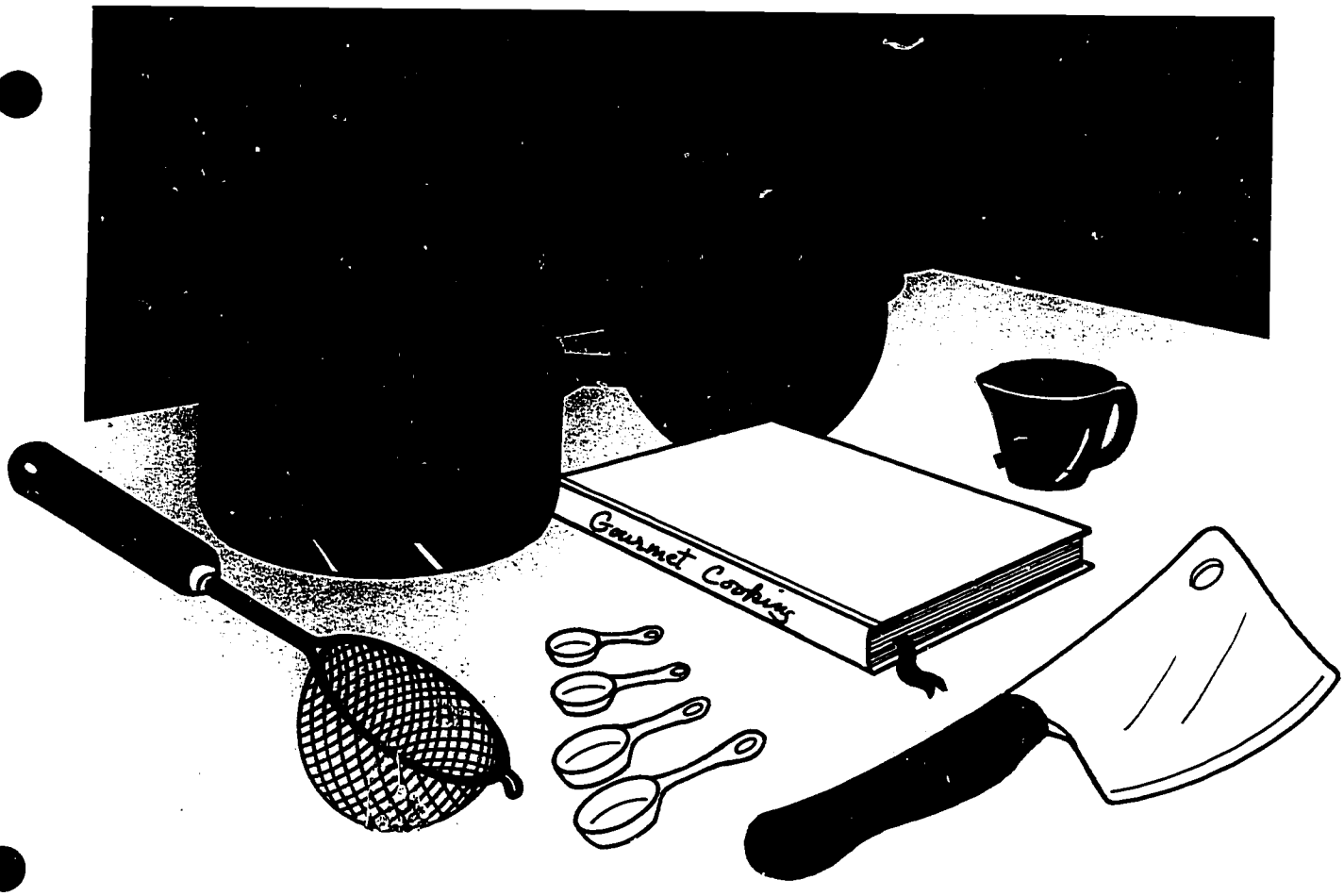
Vocational-technical teachers need to manage their programs so that the tools, equipment, and materials required for instruction are available when they are needed. Students in the basic automotive service class, for instance, shouldn't find that their practice in tire repair has to come to a screeching halt because there aren't enough tires to go around. The horticulture teacher ready to begin a unit on grafting shouldn't get caught with his plants down.

These educational embarrassments can be avoided if you look ahead in a systematic manner and (1) identify all the instructional resources the teaching plans call for and (2) do whatever is required to make sure they are available. *Instructional resources* in this context refers to all the hardware and software that are directly involved in the process of teaching and learning.

In an instructional unit in the commercial cooking program, this may be no more than a few grains of spice. In the heavy equipment operators training program, it may mean a ten-ton bulldozer. Small tools, machines, books, filmstrips, and laboratory supplies in almost infinite variety are essential instructional resources and must be provided for.

It is one of your management tasks to determine the instructional resources your program is going to require in the school term ahead and then to see to it that they are purchased, borrowed, collected, or acquired in some way to meet the needs of the students at the right time and place.

This module describes the factors that you must consider when planning for resources. It is designed to help you to acquire the skills necessary to develop a systematic approach to the task of projecting and acquiring instructional tools, materials, and supplies so that your vocational-technical program will be run smoothly and efficiently.



ABOUT THIS MODULE

Objectives

Terminal Objective: In an actual teaching situation, project instructional resource needs. Your performance will be assessed by your resource person, using the Teacher Performance Assessment Form, pp. 23–24 (*Learning Experience III*).

Enabling Objectives:

1. After completing the required reading, demonstrate knowledge of the concepts and procedures involved in projecting instructional resource needs (*Learning Experience I*).
2. Given a case study describing how one teacher projected instructional resource needs, critique the performance of that teacher (*Learning Experience II*).

Resources

A list of the outside resources that supplement those contained within the module follows. Check with your resource person (1) to determine the availability and the location of these resources, (2) to locate additional references in your occupational specialty, and (3) to get assistance in setting up activities with peers or observations of skilled teachers, if necessary. Your resource person may also be contacted if you have any difficulty with directions or in assessing your progress at any time.

Learning Experience I

Optional

A vocational-technical teacher, experienced in projecting instructional resource needs, whom you can interview.

Learning Experience II

No outside resources

Learning Experience III

Required

An actual teaching situation in which you can project instructional resource needs.

A resource person to assess your competency in projecting instructional resource needs.

General Information

For information about the general organization of each performance-based teacher education (PBTE) module, general procedures for its use, and terminology that is common to all the modules, see About Using the National Center's PBTE Modules on the inside back cover. For more in-depth information on how to use the modules in teacher/trainer education programs, you may wish to refer to three related documents:

The *Student Guide to Using Performance-Based Teacher Education Materials* is designed to help orient preservice and inservice teachers and occupational trainers to PBTE in general and to the PBTE materials.

The *Resource Person Guide to Using Performance-Based Teacher Education Materials* can help prospective resource persons to guide and assist preservice and inservice teachers and occupational trainers in the development of professional teaching competencies through use of the PBTE modules. It also includes lists of all the module competencies, as well as a listing of the supplementary resources and the addresses where they can be obtained.

The *Guide to the Implementation of Performance-Based Teacher Education* is designed to help those who will administer the PBTE program. It contains answers to implementation questions, possible solutions to problems, and alternative courses of action.

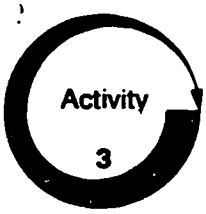
Learning Experience I

OVERVIEW

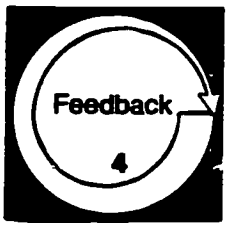
After completing the required reading, demonstrate knowledge of the concepts and procedures involved in projecting instructional resource needs.

You will be reading the information sheet, Projecting Instructional Resource Needs, pp. 6–12.

You may wish to meet with a vocational-technical teacher experienced in projecting instructional resource needs to discuss how he/she projects instructional resource needs for his/her program.



You will be demonstrating knowledge of the concepts and procedures involved in projecting instructional resource needs by completing the Self-Check, pp. 13–14.



You will be evaluating your competency by comparing your completed Self-Check with the Model Answers, pp. 15–16.

Vocational-technical instruction involves a variety of instructional resources—the many learning tools needed to make your units and lessons come alive. For information on types of instructional resources you must plan for, the factors involved in projecting instructional resource needs, and suggested procedures for developing such projections, read the following information sheet.

PROJECTING INSTRUCTIONAL RESOURCE NEEDS

Imagine the plight of a teacher who has begun a new unit of instruction without having looked ahead to be sure that the tools, equipment, and supplies of instruction will be available when they are needed. The teacher tries to introduce the unit by using a film, only to discover that the film library doesn't have it. In order to plan the laboratory project for the unit, the students need some reference materials, but the teacher doesn't have any such material in the classroom, and the only book on the subject in the library has been checked out.

The students finally get to work, only to find that the one machine essential to the new process is out of order. There is a hand tool that can be used in place of the machine. However, with only one tool available for 24 students, it will take all year for the class to get the project done. The teacher forgot entirely about the paint needed for the project; now it will be four weeks until the order goes through. There appeared to be enough stock for all students, but some students made some mistakes and wasted material, so now the rest of the class will be short.

All in all, this teacher has created student frustration and resentment, risked student discipline problems, jeopardized the instructional plans for the term, and given him/herself many urgent problems to solve, just because he/she did not plan to have the necessary instructional resources at hand for the work. Before the unit was begun or, better yet, before the beginning of the school year, the teacher should have developed an estimate of instructional needs and taken the necessary steps to acquire them.

Such an estimate of future needs is called a **projection**, and preparing such a projection is one of the teacher's instructional management tasks. It is not a mysterious process, but it does require organized thought and planning. What got our fictitious teacher into trouble was the lack of instructional resources just when their need was critical to the functioning of the instructional program.

The term *instructional resources* can cover a wide range of tools, equipment, and materials. The common denominator is that these items are used directly for the instruction of students. Instructional resources may include classroom and lab **supplies** from chalk to cheesecloth, small **tools**, heavy lab **equipment** or machines, **media** such as filmstrips or transparencies, **reference books** for student use, or any number of **miscellaneous items** used in teaching.

Resources may be as temporarily useful as today's newspaper or as permanent as an industrial diamond. They may be used to make a minor point (as in noting the number of job vacancies advertised in today's classified ads) or may be as central to student learning as a metal lathe is to a machinist. Whether they are small and trivial or large and expensive, instructional resources are vital and integral aspects of teacher instructional strategies and student learning activities.

Types of Resources

Most procedures for requesting or ordering instructional resources divide the items into several categories: tools, equipment, supplies, media (or audiovisual materials), and instructional or reference materials. The definitions for these categories may vary from school to school. The following are generally accepted definitions, with examples of each type.

Equipment. Equipment is usually defined as items that are of a permanent or semipermanent nature (e.g., expected to last more than three years). Minor equipment may be described as costing $50 to $300; major equipment, over $300. Examples of equipment used in vocational-technical shops and labs include such items as sewing machines, lathes, dental chairs, oscilloscopes, hydraulic jacks, blueprint machines, beds, tractors, typewriters, and ovens.

Almost always, purchasing equipment involves getting bids from vendors before the purchase order can be awarded—a time-consuming process. In purchasing equipment, you must be very careful to specify exactly what is wanted and to check to be sure that the proper items are actually ordered and delivered.

Tools. The definition of tools is not quite as clear as that of equipment. Tools are usually considered to be semipermanent and relatively inexpensive. Tools are generally, but not always, portable and of small size. Examples of tools are scissors, wrenches, soldering guns. scalpels, knives, rules, thermometers, and hammers.

Ordering the right number of tools for a class can be a bit uncertain. Depending on the use to which each tool will be put, you may need only one of each, several tools for the class, or one for every student in the class.

Supplies. Supplies are items that are consumed, or used up, in the course of their use. The dividing line between tools and supplies is not always clear. Supplies are sometimes defined as lasting less than three years. They are often incorporated into student projects and lose their identity.

Vocational programs use an almost infinite variety of supplies. A few examples of supplies are paper, foods, metals, cleaning compounds, adhesives, seeds, bandages, lubricants, finishes, and abrasives. Because of the variety and quantity of supplies needed in most occupational programs, ordering exactly the right supplies for the program may be a complex task.

Media. Materials of an audio and/or visual nature that are used in the instructional process are included in this category. This can include items that you use in lesson presentations to the class, as well as materials that students need for independent study. Lesson plans, unit plans, and learning packages should include the information needed to order media. Some of these items may be available from the school's materials center; others, from loan and rental services; and some will need to be purchased.

Examples of media items are films, audiotapes, filmstrips, overhead transparencies, and slide/tape presentations. Hardware associated with media (projectors, recorders, screens, models, cameras) are usually categorized as equipment.

Reference and instructional materials. This category relates primarily to printed materials used by either teacher or students. Some teachers do not give such material the attention it deserves because its use may not be so clearly delineated in instructional plans. Each occupational area will have unique needs for references and instructional materials, but in general, this category includes repair and maintenance manuals, specification sheets, magazines, parts manuals, wall charts, learning packages, and laboratory syllabi.

Some of these may be purchased by and shelved in the school library; some you may need to have for quick reference right in your own classroom or lab. Very often, the easiest way to purchase printed material is through the library acquisition system rather than through normal supply purchasing procedures.

Factors to Consider

A projection of required instructional resources is far more than a collection of vague surmises, a "guesstimate," or an off-the-cuff calculation. It must be based on all the elements of the curriculum and on the specific instructional activities that are being planned.

It cannot be too highly stressed that the decision concerning what is needed in the way of instructional resources should be solidly based on the planned instructional program, rather than the other way around. You should avoid having to adjust the program to existing tools and equipment, as this may lead to instruction that is ill balanced, irrelevant to the occupation, or out-of-date. Just because a piece of equipment is in the lab does not mean that it must be used in the program. It may have already outlived its industrial, as well as its instructional, usefulness.

In the discussion that follows, the most clearly definable elements that affect instructional resources are described.

The written curriculum. The course of study, course outline, or competency profile is the basic document of the vocational instructional program. It lists the knowledge, skills, and attitudes students must acquire; and to provide this instruction, certain resources are needed. The various unit and lesson plans or learning packages developed to provide the instruction specified in the written curriculum should clearly delineate the instructional resources needed. These can serve as valuable checklists as you make your projections.

Student needs and interests. In most instructional plans or learning packages, there should be flexibility to provide for the differing needs of students. Instructional resources should be selected, whenever possible, to meet these needs and therefore will vary from program to program and will change over time. As you project resource requirements, you should do this in the light of the individual students enrolled in your program. For example, filmstrips and textbooks may be equally thorough instructional devices for a unit, but the filmstrip may be far more effective in helping a group of students who are poor readers.

Instructional techniques. The selection of resources is highly dependent on the general instructional approach and the specific teaching strategies to be used in the instructional program. Resources that are most appropriate for one teaching technique may be almost useless for another.

For example, the project method usually relies heavily on lab equipment and supplies. The lecture-discussion method may require extensive reading materials. Independent study may need a variety of reference works and periodicals. The competency-based approach frequently utilizes learning packages and specially prepared media. It is absolutely vital that you select and develop the instructional techniques to be used before projecting the instructional resources needed for the program.

Safety considerations. No matter what instructional resources are to be used, the safety of students must be a prime consideration. Lab equipment must be in safe working order, tools needed for instruction must be the safest obtainable, and instructional supplies should be purchased and stored to minimize safety hazards. If there are choices and decisions to be made about safe instructional resources, this must be done as you make your plans and projections.

Occupational requirements. This is another important basis for projecting current instructional needs. Occupational requirements change, so the instructional materials and devices need to reflect this change. If, for example, architectural draftsmen now do their drawings on film rather than on paper, the teacher should act to provide similar materials to drafting students.

Past experience. The written curriculum and the unit and lesson plans or learning packages furnish the formal bases for selecting resources, but you should draw on your personal experience as well. Some resources will have been found to be more convenient, cheaper, more effective with students, or more generally useful than others. For example, a building trades instructor may have found that there is no reason to provide both ⅜" and ½" plywood because the ½" thickness is suitable for all instructional purposes. The experienced teacher has a wealth of such knowledge on which to draw; the beginning teacher should not hesitate to ask for the help of colleagues.

Present inventory of resources. Any projection of future resource needs must take into consideration what already is available. There is no point in requesting new material when there are things in stock that can be used equally as well. The available money should be spent for new essential items, and existing stocks of materials should be used where possible before more is ordered.

If you are a new teacher in an existing vocational program, it is reasonable to expect that there will be a considerable amount of tools, equipment, and supplies already in the facility. There should also be some form of inventory report available to you. If you have such an inventory report, you can use it as information on which to build requests for resources.

First, however, you need to verify that the inventory is correct. You should make a complete examination of materials stocks to determine whether the records are accurate, complete, and up-to-date. Don't just make a spot-check of the inventory because this method could fail to uncover errors. Later on, difficulties and frustrations could arise when you are depending on all the items to be there when you need them. Do not be surprised, however, if you do not find an inventory report, since it is not a requirement in all schools.

Available funds. No projection of resource needs will be realistic unless it takes into account the funds that are available. Your projections will be an exercise in futility if there is no money to buy the tools, equipment, or supplies that you believe to be necessary.

Number of students. The number of students who are enrolled in the program will obviously have considerable bearing on the quantity of materials and supplies required and on the number of pieces of equipment needed in the lab so as to keep student work progressing without delay. If materials are ordered at the beginning of the school year, enrollment figures are usually already known, and quantities can be calculated accordingly.

Unfortunately, sometimes the correct data is not available. Supplies may need to be ordered at the end of one school year, to be delivered at the beginning of the next. Enrollment may not have stabilized, and program plans may not be fully developed. In these cases, all you can do is to make an estimate of student enrollment, predict the final outcomes of program planning, and request additional materials to supplement what is already available in the program stocks.

Materials, Tools, and Equipment

How, then, do you project the quantity of materials, number of tools, or pieces of equipment needed? It is usually not possible (or necessary) to have one of everything for the use of every student at any time. As you make projections of required resources, there are several questions you can ask that will help clarify some of these needs. For ease of discussion, the term *tool* will be used to include materials, tools, and equipment—both the instructional and occupational "tools" required.

What does the curriculum indicate about the need for tools? Courses of study, course outlines, or competency profiles, as well as the more detailed unit and lesson plans or learning packages, not only define the kinds of tools that must be available to teacher and students but may also give some clues concerning the quantity needed. The learning experiences and lab activities indicated in these plans or learning packages will determine whether the tools will be needed for large-group, small-group, or individual learning activities. These, in turn, affect the number of tools needed.

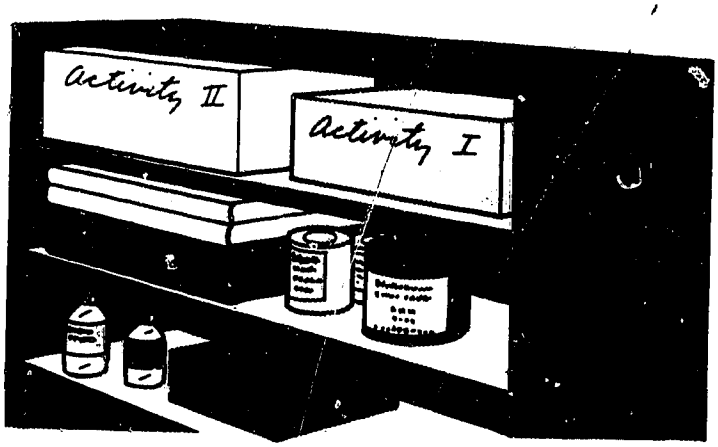
One technique you can use is to make a copy of your curriculum for review. Go down the outline, making note of the tools and equipment that are involved in each of the topics. The right-hand margins can be used for notes concerning equipment needs; the left, for tools. In this way, you can develop a basic list to help you in your more advanced planning.

How many students are likely to need the same tools at the same time? The answer to this question is related to (1) the number of students enrolled in the program and (2) the kind of instructional program in operation.

Your program may be organized around group instruction and required projects or exercises, or it may be highly individualized, with students involved in many different activities. Frequently, teachers begin the program with group work to make beginning instruction easier. As students move through the program, they progress at varying rates, and the lab activities become more varied. In a competency-based program, the entire program may be totally individualized.

In terms of tools in an electronics program, for example, if all students will be doing soldering at the same time, you will need one soldering gun for each student. If the lab work is individualized, you may need only four or five soldering guns for a class of 20.

How often is any one tool going to be needed during any particular job? Some lab projects or customer work might require the continual use of certain tools. Other jobs may require the use of a particular tool only infrequently and for a very short period of time, thus permitting fewer tools to adequately serve more students. It will take thorough and adequate planning for you to calculate this variable.



Can students be scheduled to rotate through a series of operations to reduce the demand on the number of tools? Using the multiple-activities approach, you can have perhaps seven activities taking place in the lab at the same time. All the groups will not need the same tool at any one time. In a basic automotive course, for instance, the teacher might have one group working on tire repair, with three other groups doing other things, thereby reducing the amount of tire repair equipment needed by the program.

Supplies

Ordering the correct amount of supplies for the lab also requires a bit of advance calculation. Again, there are several questions that can be asked to help clarify the problem.

How many students will be in the program for the term or semester? If you know well ahead of time the exact number of students in the program, it is then relatively easy to compute supply needs. You can simply multiply the quantities of each required supply item by the total number of students.

Unfortunately, because materials must sometimes be ordered well in advance of the start of the term, student enrollment may have to be estimated, with a factor for error included. Past experience may indicate a need to make adjustments in the estimated enrollment figures to allow for expected dropouts or late registrants.

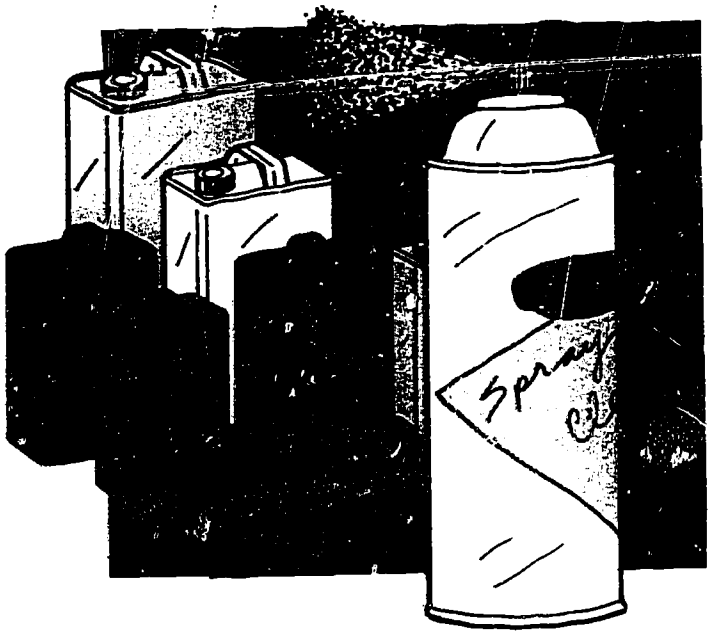
How much should be allowed for error and waste? No matter how carefully supply stocks are calculated, there is likely to be some error involved. You may not be able to determine accurately how much of an item is required. Students can be expected to make errors as they go through the process of learning. Through inexperience, students may break tools and damage some equipment in the course of use. In spite of your supervision, supplies will sometimes be misused and wasted.

For supplies, a round figure of 10 percent is usually used to calculate the additional amount needed to cover waste and error—your own experience will show whether this is adequate or needs to be modified. Tools subject to breakage by students (e.g., handsaw blades, needles, thermometers) should be kept in stock so the lab can continue to function smoothly in spite of student mistakes. The best guide to the number of spare parts to keep in stock is your own experience.

What other factors should be considered when preparing supply orders? For most programs, it will be necessary to provide some materials for teacher demonstrations and normal instruction. The clothing instructor will use some cloth in the process of giving a demonstration. The foods teacher will use cooking ingredients as part of the instructional process. The amount required for this purpose will vary greatly depending on the subject matter and the teaching techniques used. If demonstrations have been videotaped for individual use, demonstration materials may not be needed.

Maintenance work on tools and equipment can require supplies such as lubricants, solvents, sharpening abrasives, cleaning compounds, and finishing materials. Sometimes schools expect vocational-technical teachers to do some minor repair work, and some programs rely heavily on customer jobs ("live work") to give students desirable practice experiences. These kinds of activities also require supplies.

It is important that supplies used for the above purposes do not come out of student materials fees. They should come from a separate maintenance and instructional materials budget. It is generally considered indefensible for a teacher to make a profit on supplies sold to students for projects in order to cover the cost of supplies used for other purposes.



Media, Reference Materials, and Instructional Materials

A few special questions arise when planning for these types of instructional resources.

Which instructional aids are essential to the functioning of the program, and which are simply nice to have? Unit plans, daily lesson plans, or learning packages can point out the essential instructional aids. Learning activities that are structured around a specific piece of media, for example, would suffer greatly if the item were not available at the right time. There may well be some occupational knowledge or skills that can be taught in no other way except through a specific visual aid or reference book.

You should prepare two lists of instructional media and references—a list of **essential** items and a list of **desirable** items that would enhance the instructional program. It would also be useful if the "desirable" list were arranged in order of priority, so the items can be purchased in that order as funds become available.

What media and reference materials are already available in the school and vocational program? Some form of inventory or listing of audiovisual and reference materials may already exist. You may locate it in the school library, the materials center, or the vocational program office. It can serve as a start in determining what is conveniently available. If such an inventory or catalog does not exist, it would be very wise for you to try to arrange for one to be prepared for future use or to prepare one yourself, listing only those materials specifically related to your program.

How appropriate are the media and materials to the planned instruction? Unlike standard tools, equipment, and supplies, it is almost never efficient to order instructional materials sight unseen from a catalog. You should always inspect transparencies and slides, preview films, and listen to audiotapes before purchase. Otherwise, the material may turn out to be quite useless for your purposes and a waste of money.

If the producers and publishers of the materials in which you are interested extend preview privileges to prospective purchasers, use this opportunity to examine the materials. If not, contact the local representative of the company to arrange for a showing.

Whenever possible, the reference materials (e.g., books, specification sheets, catalogs) should duplicate those that the students will find in an actual work situation. Naturally, all reference material should be up-to-date, which means that you should periodically review the materials already available and order current material when replacement is indicated.

How should instructional materials be ordered? You should check with your school or college administrator to find out the exact procedures for obtaining instructional materials in your institution. There may be a school/college budget or a library budget against which you can draw for these items. Many visual materials and services may be available to you from a central materials service without charge. You may be able to get reference materials from the institution's textbook fund. Try to tap as many of the institution's resources as possible.

Budgets for Instructional Resources

It is difficult to separate the task of projecting instructional resource needs from the problems of money and budgets. One of your first actions in the process of projecting resource needs will be to determine if there are sources of tools, equipment, and supplies that involve little or no cost. Local businesses and industries may, for instance, be a source of some instructional resources. In addition, according to the *Vocational Education Reporter*—

> . . . thousands of machine tools and equipment are loaned to vocational schools at almost no cost by the Department of Defense. Through its Tools for Schools program, the Defense Industrial Plant Equipment Center (DIPEC) locates industrial manufacturing equipment that is not needed by the military for defense contracts and loans it to schools to train skilled workers. A total of 650 loans have been made to schools of 9,000 tools valued at $50 million.
>
> There is no catalog of equipment available because the reserve is constantly changing. A list is provided of the types of equipment that can be loaned, including metal cutting, testing, welding, woodworking, and metal forming equipment, as well as equipment for special industries.
>
> Schools prepare a very simple application, listing the types of equipment they would like to have. After the application has been approved, DIPEC surveys its inventory of equipment available nationwide and shares descriptions of the equipment with the applicant. If the equipment meets the need, it is immediately shipped to the school.
>
> All the institution must pay for is shipping and packing, trip transit insurance, and insurance on the equipment while it is at the school site. To request application information, contact Commander, DIPEC, Defense Industrial Loan Branch, Memphis, TN 38114.[1]

Next, you need to find answers to the following questions:

- What funds are available from the school or college for the purchase of instructional resources?
- What policies govern the collection of student fees and the selling of supplies to students?
- What policies and procedures exist for charging customers for service work?

It may be necessary to search diligently for more money, if that is possible, or it may even be necessary to modify instructional plans in order to live within present financial constraints. In any case, it is very important that students not be charged any more than is absolutely necessary.[2]

It may help you in preparing a projection of instructional resources to employ a simple form to record needs and calculate costs. Sample 1 is an example of such a form. It should be noted, however, that because vocational-technical programs vary widely in their utilization of resources, you may want to design a form that is specific to your service area or occupational specialty.

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1. Carol Hinckley Boyle, ed., *Vocational Education Reporter* (Arlington, VA: American Vocational Association, April 1981), p. 2.

2. To gain skill in preparing budgets, collecting fees, and ordering materials, you may wish to refer to Module E-2, *Manage Your Budgeting and Reporting Responsibilities.*

SAMPLE 1

PROJECTED SUPPLY NEEDS

Program: _____ **Term:** _____, **19** _____

Teacher: _____ **Date:** _____ **No. of Students:** _____

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
Item	**Required Per Student**	**Class Need Per Term**	**Quantity on Hand**	**To Be Ordered**	**Vendor**	**Unit Cost**	**Total Cost**
1. Resin Core Solder	½ lb.	10 lb.	3 lb.	7 lb.	Allied	4.95 lb.	34.65
2. 1.5 Volt Dry Cells	3	60	27	33	Radio Shack	.54 ea.	17.82
3. Soldering Gun Tips	2	40	21	19	LaFayette	.99 ea.	18.81
4. Fluorescent Tube T-8	—	2	3	0	—	—	—
5.							
6.							
7.							
8.							
etc.							

Sample 1 is partially filled in to illustrate how it can be used. For example, the first item, solder, is estimated by the teacher to be consumed by students at the rate of ½ lb. per student per term. With 20 students in the class, this means that 10 lbs. of solder will be needed for the school term. Since the teacher already has 3 lbs. of solder in stock (Column d), an additional 7 lbs. should be ordered, at a total cost of $34.65.

Past experience has shown that, on the average, students wear out about two soldering gun tips during a term (Item 3). The fluorescent tubes are actually needed by the teacher for demonstrating an electrical circuit, rather than for student lab work. Since there are enough tubes on hand, none need to be ordered. Similar forms can be constructed for tools, media, instructional materials, or other types of resources.

It can be seen that the whole process of projecting instructional resource needs is fairly straightforward. The first time it is done, it may require a considerable amount of time and effort to complete. In succeeding school or college terms, however, the projection may only need to be reviewed, changed where required according to program revisions or past experience, and recalculated. Done properly, a projection of instructional resource needs can make the instructional program function smoothly, relieve you of the need to solve supply problems on a haphazard basis, and generally help to make teaching and learning a more pleasant and effective experience.

A teacher in your own service area who is experienced in planning for instructional resources may be able to give you insights into the problems involved in projecting instructional resource needs in a vocational-technical program. You may wish to arrange through your resource person to meet with such a teacher and ask him/her about any problems unique to your area, special factors that must be considered. and practical procedures he/she has found particularly helpful.

The following items check your comprehension of the material in the information sheet, Projecting Instructional Resource Needs, pp. 6–12. Each of the five items requires a short essay-type response. Please explain fully, but briefly, and make sure you respond to all parts of each item.

SELF-CHECK

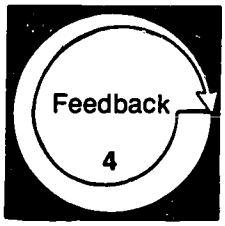
1. What is the relationship between the written curriculum (e.g., course of study, course outline, or competency profile) for a particular vocational-technical program and the instructional resource materials that should appear in the classroom and laboratory?

2. For the next fall term, you intend to change your teaching approach in your program (e.g., to greater individualization). How will this affect your projections for the instructional resources you will need next fall?

3. Why should you have an inventory report of the tools, equipment, and supplies in your classroom and laboratory when you are making projections of the instructional resources you will need?

4. How can persons from business or industry (or an advisory committee) be of assistance to the teacher who is developing his/her projections of resource needs for the coming term?

5. What kind of evidence or justification could you give to your administrator that the many new tools you want to order are essential to your instructional program?



Compare your written responses to the self-check items with the model answers given below. Your responses need not exactly duplicate the model responses; however, you should have covered the same **major** points.

MODEL ANSWERS

1. Instructional materials, such as reference books, films, and transparencies, must not be requested just because they look interesting or may help students in some vague, unspecified way. Any projection of instructional resource needs should be based on definite instructional plans, including the curriculum for the program, the unit and lesson plans, or the learning packages. The learning activities and experiences that are required in the curriculum should determine the types, amount, and specific titles of materials available to students in the classroom and lab.

   The reference sources listed in the curriculum serve as a good starting place for selecting new materials. Since it is important that instructional materials be as up-to-date as possible, it will be necessary for you to search for the latest editions and newest versions of the materials.

2. The relation between teaching approach and instructional resources of all kinds is very strong and direct. If there is to be a major change in approach (as, for example, changing from a conventional lecture/lab program to fully competency-based instruction), it might also be necessary to make major changes in tools, lab equipment, lab supplies, and reference materials.

   Take the case of competency-based instruction, for example. Because the instruction is generally more individualized than in conventional programs, it may be necessary to purchase or develop learning packages for each student and to have a much greater collection of slide/tape presentations, videotapes, and reading materials.

   File drawers and storage boxes may have to be acquired to house the collection. A few more audio- and videotape players may be needed so students can use the materials efficiently, and study carrels may need to be installed. On the other hand, it is likely that fewer duplicates of machines and tools would be needed because students would be working on a greater variety of learning activities at any one time.

   Sometimes, even minor changes in teaching techniques can affect resource needs. If, for example, you decide to use more overhead transparencies instead of time-consuming chalkboard drawings, the following changes may be needed: (a) purchase of a new projector, (b) installation of a permanent screen in the classroom, (c) a new file for transparencies, and (d) less colored chalk.

   Just as the equipment that happens to exist in the lab must not be allowed to control the curriculum, neither should the instructional materials on hand dictate the teaching techniques to be used. The techniques should be those that are the most effective for working with a particular group of students. Instructional materials should be carefully chosen to support and enhance the teaching technique.

3. Without some type of inventory report, you cannot make an accurate projection of resource needs for the coming term or the next instructional activity. The first big step in projecting resources is to calculate the total tools, equipment, supplies, and materials required for the program. The next step is to subtract from the estimate those items and quantities already available. You can then plan to order the additional items required.

   Without an accurate inventory, the second step becomes largely guesswork—full of chance for error, miscalculation, or forgetting. You will, no doubt, have better things to do with your program funds than to buy an oversupply of some items just because you forgot you already had some on hand.

   The inventory also serves as a check on past experience. Your inventory records can tell you how much of a certain supply item was actually used during the past year, so you can use this as a basis for estimating future consumption. Such records may remind you that a piece of equipment is getting old and may need replacement

or that, with enrollment going up, the number of tools may be inadequate for next year. It is unwise to leave such things strictly to memory.

4. Probably the most important thing that a group from business and industry can do for you in regard to instructional resources is to help to keep your program up-to-date. It is easy for the teacher who has been away from the actual job for a while to get immersed in his/her own program and to lose track of new developments in the field.

   As you go through the process of preparing your list of resource needs, you can involve your advisory committee members in checking to make certain your tools and equipment meet present-day standards in the occupation. They could also review your supplies list for appropriateness and perhaps suggest new reference materials that are used in the occupation.

   If you find that your program is lacking some instructional resources, whether tools, equipment, or supplies, the advisory committee may be able to assist you in getting them. It is possible that they may make a gift to the program themselves or locate someone who can. The formal and strong support of the advisory committee may also give added weight to your request to the administration for the needed funds for your instructional program.

5. The best single piece of evidence that you can present to establish the essential nature of your request for tools is that the request is based directly on the program's curriculum. The curriculum is an almost official document of the school or college, accepted by the administration as an authoritative statement concerning what is to take place in the occupational program. The unit plans, daily lesson plans, or learning packages derived from the curriculum have similar acceptance. Student performance objectives make these plans/packages operational.

   If the curriculum indicates that students in the occupation must be able to use certain tools, then those tools should be available in the lab. You should be able to show, of course, that the requested tools are not at present in the inventory, and that, when received, they will be given proper care and control.

   Other justifications for requesting additional tools are that (a) the present ones are worn, unsafe, or out-of-date, (b) increased enrollment in the program necessitates more tools, or (c) changes in instructional approaches require more tools for the class. If you have worked out your projection of needs carefully—and have the data to back it up—there is a much greater chance that the tools will be forthcoming. A request accompanied by the offhand claim that "I really need these" is much less impressive.

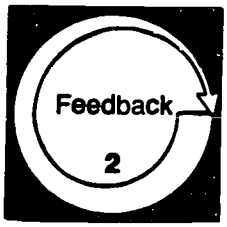
Level of Performance: Your written responses to the self-check items should have covered the same major points as the model answers. If you missed some points or have questions about any additional points you made, review the material in the information sheet, Projecting Instructional Resource Needs, pp. 6–12, or check with your resource person if necessary.

Learning Experience II

OVERVIEW

Given a case study describing how one teacher projected instructional resource needs, critique the performance of that teacher.

You will be reading the Case Study, p. 18, and critiquing the performance of the teacher described.



You will be evaluating your competency in critiquing the teacher's performance in projecting instructional resource needs by comparing your completed critique with the Model Critique, p. 19.

The following case study tells of one teacher's efforts to plan and prepare a projection of the instructional resource needs of her program. Read the case study and then **explain in writing** (1) the strengths of the teacher's approach, (2) the weaknesses of the teacher's approach, and (3) how the teacher should have treated her responsibilities.

CASE STUDY

The young instructor felt very pleased and proud of herself as she ripped the last page out of her typewriter. Here she was, Miss Engenu Bambini, ready to begin her career as the new instructor of the child-care worker program at Pineywoods Tech! The first day of classes was still several weeks away, but she was working hard to have everything perfectly planned and in order when the first student arrived.

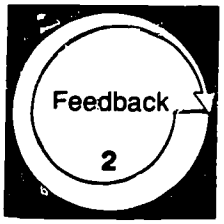
Right now she was finishing up the resource lists and the purchase orders she would submit tomorrow to Mr. Stern, her administrator, for his signature. She hadn't yet talked to him about money for the program, but when he had hired her, he had promised to help in any way he could. Thus, she had no doubt that he would approve everything she needed. She was taking over an ongoing program that hadn't been going too well, so she would need a lot of things.

Miss Bambini began a final check of her estimates for instructional equipment, supplies, and materials for the coming year. She wanted to be sure there were no errors or omissions on these important papers. As she reread what she had written, she made a mental check of the matters she had wanted to be sure to cover. Yes, she had thoroughly reviewed the curriculum for the child-care worker program (that's what the school called the course of study) to be sure that all the resources called for would be available to students. She had reorganized the old unit plans and had written two new ones; she had added the laboratory supplies for these units to the supplies list.

While going through these plans, she had remembered some new visual materials she had seen advertised and added them to the instructional materials list. She had gone through the child-care classroom, but she didn't remember seeing much reference material, so she put some fine new reference books into the equipment order. They were expensive but would last a long time, she thought.

She was rather glad that there would be only 16 students in the program the first semester. It would make it easier for her to get things organized properly, and she felt she could soon increase the enrollment. It also made her feel a bit easier about ordering those 16 cassette tape recorders that her students would need to use for Unit V on story telling.

Miss Bambini was glad she had looked over the cumulative records of every one of those students. They seemed like such a nice group. Like most child-care students though, they certainly had a great range of backgrounds. Some were young mothers, with rather poor academic records, who were training for their first jobs; two were mature college graduates; and the others were somewhere in between. Miss Bambini sincerely wanted them all to succeed, so she intended to think about the right teaching technique to reach every one—but all that was in the future. Right now she had to correct a couple of typing errors and get these resource lists up to Mr. Stern's office.



Compare your written critique of the teacher's performance with the model critique given below. Your response need not exactly duplicate the model response; however, you should have covered the same **major** points.

MODEL CRITIQUE

Miss Engenu Bambini may be inexperienced, but she certainly appears to be conscientious in her efforts to get started right in her new position. She has obviously tried to do a good job of acquiring the instructional resources she will need for her program—making out the resource lists and purchase orders carefully and well ahead of time.

She did well to review the teaching plans and course of study to make sure that all the equipment and supplies needed for the learning activities would be available to her students at the right time. She tried hard to include up-to-date instructional material such as the new visual aids and the new reference books. It was perceptive of her to review the records of her prospective students before the school term began. Surely, her heart is in the right place.

Miss Bambini may be in for some disappointments, however. While Mr. Stern was no doubt sincere in his pledge of cooperation, there are limits to what he can do. She should have talked to him earlier about her budget for equipment and supplies and about school policy regarding charging students fees. Very few vocational-technical teachers are likely to get everything they feel they need for their programs.

One mistake Miss Bambini made was not finding out what was already available for her use. She "didn't remember seeing" reference material, but memory is a poor basis on which to work out purchase orders. One of the first things she should have done was to find the inventory report left by the previous teacher. If there was none, she should have taken a careful inventory of resources herself. Administrators take a dim view of new orders for equipment and supplies that already exist.

It is too bad that while Miss Bambini was going over the records of her prospective students, she did not try to select her instructional resources to best meet the needs and interests of the students. With such a diverse group, it is possible that some might not learn effectively from written materials and would benefit from the use of more audio- or videotapes, while some of the others might require more sophisticated materials.

Miss Bambini didn't seem to realize either that planning for the teaching techniques she intended to use should not be a matter for the future. It should be done now, at least in broad terms. If the child-care class is to use primarily group work (such as role-playing, class discussions, committee projects), some of the equipment and materials required may be quite different from that needed for strictly individualized instruction.

There were a couple of other matters in her resource requests that Mr. Stern will probably quickly put to rights. One was the inclusion of books in the equipment order. Even though they are semi-permanent, in most schools, books are purchased using separate funds and different procedures than equipment.

The other concern is the necessity for ordering one tape recorder for every student. Mr. Stern is very likely to question Miss Bambini on this, asking her whether every student will be using the recorders at exactly the same time and whether she has thought about rotating students through the story-telling assignment in some way in order to get along with fewer pieces of equipment.

We are sure that Mr. Stern will be kind and helpful, however. He will realize that here is a young instructor who is determined to be well prepared for her classes and obviously committed to helping her students succeed in their new occupation.

Level of Performance: Your written critique of the teacher's performance should have covered the same **major** points as the model critique. If you missed some points or have questions about any additional points you made, review the material in the information sheet, Projecting Instructional Resource Needs, pp. 6–12, or check with your resource person if necessary.

NOTES

Learning Experience III

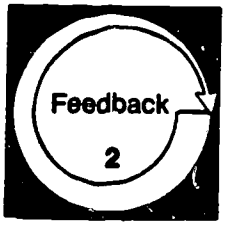
FINAL EXPERIENCE

In an **actual teaching situation,*** project instructional resource needs.

As you plan instruction for your vocational-technical program, project instructional resource needs. This will include—

- reviewing the curriculum and other relevant factors to determine the need for tools, equipment, supplies, media, and reference and instructional materials
- preparing a written document outlining the instructional resource needs
- preparing and submitting (if feasible) appropriate requests for the needed items

NOTE: As you complete each of the above activities, document your actions (in writing, on tape, through a log) for assessment purposes.



Arrange to have your resource person review your documentation.

Your total competency will be assessed by your resource person, using the Teacher Performance Assessment Form, pp. 23–24.

Based upon the criteria specified in this assessment instrument, your resource person will determine whether you are competent in projecting instructional resource needs.

* For a definition of "actual teaching situation," see the inside back cover.

NOTES

TEACHER PERFORMANCE ASSESSMENT FORM

Project Instructional Resource Needs (E-1)

Name _____

Date _____

Resource Person _____

Directions: Indicate the level of the teacher's accomplishment by placing an X in the appropriate box under the LEVEL OF PERFORMANCE heading. If, because of special circumstances, a performance component was not applicable, or impossible to execute, place an X in the N/A box.

	LEVEL OF PERFORMANCE					
In projecting instructional resource needs, the teacher:	N/A	None	Poor	Fair	Good	Excellent
1. based the projection on the program's curriculum (course of study, course outline, or competency profile)	☐	☐	☐	☐	☐	☐
2. considered the following in determining the **items** required:						
a. needs and interests of students	☐	☐	☐	☐	☐	☐
b. instructional techniques to be used in the program	☐	☐	☐	☐	☐	☐
c. safety of students	☐	☐	☐	☐	☐	☐
d. requirements of the occupational area	☐	☐	☐	☐	☐	☐
e. past experience in using instructional resources	☐	☐	☐	☐	☐	☐
f. funds available	☐	☐	☐	☐	☐	☐
3. considered the following in determining the **quantity** of resources required:						
a. the number of students in the program	☐	☐	☐	☐	☐	☐
b. the learning experiences planned for students	☐	☐	☐	☐	☐	☐
c. organizational pattern of class and laboratory work	☐	☐	☐	☐	☐	☐
d. error and waste of materials by students	☐	☐	☐	☐	☐	☐
e. customer and maintenance work	☐	☐	☐	☐	☐	☐
4. used an inventory of existing resources as a basis for calculating future needs	☐	☐	☐	☐	☐	☐
5. made proper distinctions between tools and equipment, supplies, media, and reference materials	☐	☐	☐	☐	☐	☐

	N/A	None	Poor	Fair	Good	Excellent
6. gave appropriate consideration to the need for:						
a. tools	☐	☐	☐	☐	☐	☐
b. equipment	☐	☐	☐	☐	☐	☐
c. supplies	☐	☐	☐	☐	☐	☐
d. media	☐	☐	☐	☐	☐	☐
e. reference and instructional materials	☐	☐	☐	☐	☐	☐
7. consulted the school or college library and media center about the availability of media and reference materials	☐	☐	☐	☐	☐	☐
8. prepared requests for materials based on a realistic estimate of available funds	☐	☐	☐	☐	☐	☐
9. produced a document summarizing the needed instructional resources that was:						
a. well organized and neat	☐	☐	☐	☐	☐	☐
b. easy to understand	☐	☐	☐	☐	☐	☐
c. correctly categorized	☐	☐	☐	☐	☐	☐
d. accurately calculated	☐	☐	☐	☐	☐	☐

Level of Performance: All items must receive N/A, GOOD, or EXCELLENT responses. If any item receives a NONE, POOR, or FAIR response, the teacher and resource person should meet to determine what additional activities the teacher needs to complete in order to reach competency in the weak area(s).

ABOUT USING THE NATIONAL CENTER'S PBTE MODULES

Organization

Each module is designed to help you gain competency in a particular skill area considered important to teaching success. A module is made up of a series of learning experiences, some providing background information, some providing practice experiences, and others combining these two functions. Completing these experiences should **enable** you to achieve the **terminal** objective in the final learning experience. The final experience in each module always requires you to demonstrate the skill in an actual teaching situation when you are an intern, a student teacher, an inservice teacher, or occupational trainer.

Procedures

Modules are designed to allow you to individualize your teacher education program. You need to take only those modules covering skills that you do not already possess. Similarly, you need not complete any learning experience within a module if you already have the skill needed to complete it. Therefore, before taking any module, you should carefully review (1) the introduction, (2) the objectives listed on p. 4, (3) the overviews preceding each learning experience, and (4) the final experience. After comparing your present needs and competencies with the information you have read in these sections, you should be ready to make one of the following decisions:

- That you do not have the competencies indicated and should complete the entire module
- That you are competent in one or more of the enabling objectives leading to the final learning experience and, thus, can omit those learning experiences
- That you are already competent in this area and are ready to complete the final learning experience in order to "test out"
- That the module is inappropriate to your needs at this time

When you are ready to complete the final learning experience **and** have access to an actual teaching situation, make the necessary arrangements with your resource person. If you do not complete the final experience successfully, meet with your resource person and arrange to (1) repeat the experience or (2) complete (or review) previous sections of the module or other related activities suggested by your resource person before attempting to repeat the final experience.

Options for recycling are also available in each of the learning experiences preceding the final experience. Any time you do not meet the minimum level of performance required to meet an objective, you and your resource person may meet to select activities to help you reach competency. This could involve (1) completing parts of the module previously skipped, (2) repeating activities, (3) reading supplementary resources or completing additional activities suggested by the resource person, (4) designing your own learning experience, or (5) completing some other activity suggested by you or your resource person.

Terminology

Actual Teaching Situation: A situation in which you are actually working with and responsible for teaching secondary or postsecondary vocational students or other occupational trainees. An intern, a student teacher, an inservice teacher, or other occupational trainer would be functioning in an actual teaching situation. If you do **not** have access to an actual teaching situation when you are taking the module, you can complete the module **up** to the final learning experience. You would then complete the final learning experience later (i.e., when you have access to an actual teaching situation).

Alternate Activity or Feedback: An item that may **substitute** for required items that, due to special circumstances, you are unable to complete.

Occupational Specialty: A specific area of preparation within a vocational service area (e.g., the service area Trade and Industrial Education includes occupational specialties such as automobile mechanics, welding, and electricity.

Optional Activity or Feedback: An item that is not required but that is designed to **supplement** and enrich the required items in a learning experience.

Resource Person: The person in charge of your educational program (e.g., the professor, instructor, administrator, instructional supervisor, cooperating/supervising/classroom teacher, or training supervisor who is guiding you in completing this module).

Student: The person who is receiving occupational instruction in a secondary, postsecondary, or other training program.

Vocational Service Area: A major vocational field: agricultural education, business and office education, marketing and distributive education, health occupations education, home economics education, industrial arts education, technical education, or trade and industrial education.

You or the Teacher/Instructor: The person who is completing the module.

Levels of Performance for Final Assessment

N/A: The criterion was not met because it was **not applicable** to the situation.

None: No attempt was made to meet the criterion, although it was relevant.

Poor: The teacher is unable to perform this skill or has only **very limited ability** to perform it.

Fair: The teacher is unable to perform this skill in an acceptable manner but has **some ability** to perform it.

Good: The teacher is able to perform this skill in an **effective** manner.

Excellent: The teacher is able to perform this skill in a **very effective** manner.

Titles of the National Center's Performance-Based Teacher Education Modules

Category A: Program Planning, Development, and Evaluation

A-1 Prepare for a Community Survey
A-2 Conduct a Community Survey
A-3 Report the Findings of a Community Survey
A-4 Organize an Occupational Advisory Committee
A-5 Maintain an Occupational Advisory Committee
A-6 Develop Program Goals and Objectives
A-7 Conduct an Occupational Analysis
A-8 Develop a Course of Study
A-9 Develop Long-Range Program Plans
A-10 Conduct a Student Follow-Up Study
A-11 Evaluate Your Vocational Program

Category B: Instructional Planning

B-1 Determine Needs and Interests of Students
B-2 Develop Student Performance Objectives
B-3 Develop a Unit of Instruction
B-4 Develop a Lesson Plan
B-5 Select Student Instructional Materials
B-6 Prepare Teacher-Made Instructional Materials

Category C: Instructional Execution

C-1 Direct Field Trips
C-2 Conduct Group Discussions, Panel Discussions, and Symposiums
C-3 Employ Brainstorming, Buzz Group, and Question Box Techniques
C-4 Direct Students in Instructing Other Students
C-5 Employ Simulation Techniques
C-6 Guide Student Study
C-7 Direct Student Laboratory Experience
C-8 Direct Students in Applying Problem-Solving Techniques
C-9 Employ the Project Method
C-10 Introduce a Lesson
C-11 Summarize a Lesson
C-12 Employ Oral Questioning Techniques
C-13 Employ Reinforcement Techniques
C-14 Provide Instruction for Slower and More Capable Learners
C-15 Present an Illustrated Talk
C-16 Demonstrate a Manipulative Skill
C-17 Demonstrate a Concept or Principle
C-18 Individualize Instruction
C-19 Employ the Team Teaching Approach
C-20 Use Subject Matter Experts to Present Information
C-21 Prepare Bulletin Boards and Exhibits
C-22 Present Information with Models, Real Objects, and Flannel Boards
C-23 Present Information with Overhead and Opaque Materials
C-24 Present Information with Filmstrips and Slides
C-25 Present Information with Films
C-26 Present Information with Audio Recordings
C-27 Present Information with Televised and Videotaped Materials
C-28 Employ Programmed Instruction
C-29 Present Information with the Chalkboard and Flip Chart
C-30 Provide for Students' Learning Styles

Category D: Instructional Evaluation

D-1 Establish Student Performance Criteria
D-2 Assess Student Performance: Knowledge
D-3 Assess Student Performance: Attitudes
D-4 Assess Student Performance: Skills
D-5 Determine Student Grades
D-6 Evaluate Your Instructional Effectiveness

Category E: Instructional Management

E-1 Project Instructional Resource Needs
E-2 Manage Your Budgeting and Reporting Responsibilities
E-3 Arrange for Improvement of Your Vocational Facilities
E-4 Maintain a Filing System
E-5 Provide for Student Safety
E-6 Provide for the First Aid Needs of Students
E-7 Assist Students in Developing Self-Discipline
E-8 Organize the Vocational Laboratory
E-9 Manage the Vocational Laboratory
E-10 Combat Problems of Student Chemical Use

Category F: Guidance

F-1 Gather Student Data Using Formal Data-Collection Techniques
F-2 Gather Student Data Through Personal Contacts
F-3 Use Conferences to Help Meet Student Needs
F-4 Provide Information on Educational and Career Opportunities
F-5 Assist Students in Applying for Employment or Further Education

Category G: School-Community Relations

G-1 Develop a School-Community Relations Plan for Your Vocational Program
G-2 Give Presentations to Promote Your Vocational Program
G-3 Develop Brochures to Promote Your Vocational Program
G-4 Prepare Displays to Promote Your Vocational Program
G-5 Prepare News Releases and Articles Concerning Your Vocational Program
G-6 Arrange for Television and Radio Presentations Concerning Your Vocational Program
G-7 Conduct an Open House
G-8 Work with Members of the Community
G-9 Work with State and Local Educators
G-10 Obtain Feedback about Your Vocational Program

Category H: Vocational Student Organization

H-1 Develop a Personal Philosophy Concerning Vocational Student Organizations
H-2 Establish a Vocational Student Organization
H-3 Prepare Vocational Student Organization Members for Leadership Roles
H-4 Assist Vocational Student Organization Members in Developing and Financing a Yearly Program of Activities
H-5 Supervise Activities of the Vocational Student Organization
H-6 Guide Participation in Vocational Student Organization Contests

Category I: Professional Role and Development

I-1 Keep Up to Date Professionally
I-2 Serve Your Teaching Profession
I-3 Develop an Active Personal Philosophy of Education
I-4 Serve the School and Community
I-5 Obtain a Suitable Teaching Position
I-6 Provide Laboratory Experiences for Prospective Teachers
I-7 Plan the Student Teaching Experience
I-8 Supervise Student Teachers

Category J: Coordination of Cooperative Education

J-1 Establish Guidelines for Your Cooperative Vocational Program
J-2 Manage the Attendance, Transfers, and Terminations of Co-Op Students
J-3 Enroll Students in Your Co-Op Program
J-4 Secure Training Stations for Your Co-Op Program
J-5 Place Co-Op Students on the Job
J-6 Develop the Training Ability of On-the-Job Instructors
J-7 Coordinate On-the-Job Instruction
J-8 Evaluate Co-Op Students' On-the-Job Performance
J-9 Prepare for Students' Related Instruction
J-10 Supervise an Employer-Employee Appreciation Event

Category K: Implementing Competency-Based Education (CBE)

K-1 Prepare Yourself for CBE
K-2 Organize the Content for a CBE Program
K-3 Organize Your Class and Lab to Install CBE
K-4 Provide Instructional Materials for CBE
K-5 Manage the Daily Routines of Your CBE Program
K-6 Guide Your Students Through the CBE Program

Category L: Serving Students with Special/Exceptional Needs

L-1 Prepare Yourself to Serve Exceptional Students
L-2 Identify and Diagnose Exceptional Students
L-3 Plan Instruction for Exceptional Students
L-4 Provide Appropriate Instructional Materials for Exceptional Students
L-5 Modify the Learning Environment for Exceptional Students
L-6 Promote Peer Acceptance of Exceptional Students
L-7 Use Instructional Techniques to Meet the Needs of Exceptional Students
L-8 Improve Your Communication Skills
L-9 Assess the Progress of Exceptional Students
L-10 Counsel Exceptional Students with Personal-Social Problems
L-11 Assist Exceptional Students in Developing Career Planning Skills
L-12 Prepare Exceptional Students for Employability
L-13 Promote Your Vocational Program with Exceptional Students

Category M: Assisting Students in Improving Their Basic Skills

M-1 Assist Students in Achieving Basic Reading Skills
M-2 Assist Students in Developing Technical Reading Skills
M-3 Assist Students in Improving Their Writing Skills
M-4 Assist Students in Improving Their Oral Communication Skills
M-5 Assist Students in Improving Their Math Skills
M-6 Assist Students in Improving Their Survival Skills

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